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Silas W. Dunsmore

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EXAMINER

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ART UNIT

PAPER NUMBER

2162

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,722

Applicant(s)

DUNSMORE ET AL.

Examiner

Dennis Myint

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 29-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119.

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Applicant's Amendment, filed on 17 March 2006.

2. Claims 1-27 and 29-57 are pending in this application. Claims 1, 23, 29, 51, and 53 are independent claims. In the Amendment filed on 17 March 2006, claims 1,3,5,7,13, 15-19, 21-23, 25-26, 29, 30-48, and 50-54 were amended. Claim 28 has been cancelled and claims 55-57 were added. This office action is made final.

Response to Arguments

3. The applicant's arguments filed on 17 March 2006 have been fully considered but are moot in view of the new ground(s) of rejection.

Taking into consideration the amendments, which the applicant made, claims 1 and related claims are rejected over (U.S. Patent Application Publication Number 2004/0133790) over Maurer III et al. (U.S. Patent Application Publication Number 2003/0065780).

Firstly, the applicant's argument that Hensley does not disclose or suggest, "providing for relocation of the *second root directory* to the first location as recited in the Applicant's claim 1 is persuasive. However, the terminology used herein must be clarified. In common language of the art, there is only one root directory, which resides at the top of any hierarchy system from different UNIX flavors to Microsoft Windows

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flavors. Any directories/hierarchies branching from the root directory are sub-directories/sub-hierarchies and should not be termed, as in claim 1 of the application, "second root directory". A correct term for said sub-directories/sub-hierarchies is recited in the specification of the Applications as "first and second sub-hierarchies" (Specification, Paragraph 0027).

In light of this clarification, new grounds of rejections are provided as follows.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code, not included in this action can be found in a prior office action.

4. Claim 1-14, 16-27, 29-42, and 44-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer III et al. (U.S. Patent Application Publication Number 2003/0065780)

As per claim 1, Hensley is directed to a method and system for exchanging a first sub-hierarchy of at least two sub-hierarchies of a hierarchical file system (HFS) (Hensley Paragraph 0018 and Figure 2) with a second sub-hierarchy of the at least two sub-hierarchies (Paragraph 0018 "a protected, hidden, emergency boot directory containing a back-up copy of a computer operating system" and Paragraph 0022), the HFS being accessible by at least one processor (Paragraph 0017-0018) and having a root directory that is a parentless directory (Paragraph 0022), the method comprising the steps of:

providing for the first sub-hierarchy to include a first root directory stored in a first location occupied by the root directory of the HFS and a first plurality of files configured to branch therefrom (Paragraph 0022) and

providing for the second sub-hierarchy to include a second root directory stored in a second location ("new emergency boot directory hierarchy") of the HFS that is not occupied by the root directory of the HFS and a second plurality of files configured to branch (Paragraph 0022) therefrom.

However Hensley does not explicitly disclose that said method provides relocation of the second root directory (i.e. relocation of a sub-hierarchy) to the first location. On the other hand, Maurer III et al. teaches a method for a data storage system having data restore by swapping logical units, wherein a second root directory is relocated (restored to) to the first location (Maurer III et al., Paragraph 0112, i.e. "In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client by swapping to the logical unit accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after *mirror synchronization* for the restore is complete.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of relocating a sub-hierarchy or unit to the first location as taught by Maurer III et al. with the method and system of Hensley et al.

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so that the combined method and system would provide for relocation of the second root directory to the first location. One would have been motivated to do so in order to "enable to extraction of such logical information in a straight-forward non-complex and fast manner so that a surrogate computer could work with replicated copies in substantially the same manner as the original source computer that had operated with standard data."

As per claim 2, Hensley in view of Maurer III et al. is directed to the system and method of claim 1, further, further comprising the step of providing for configuration of the second plurality of files to branch from the second root directory including while the second root directory is located in the first location (Hensley, Paragraph 0025-0026 and Paragraph 0030).

Claim 30 is rejected on the same basis as claim 2.

As per claim 3, Hensley in view of Maurer III et al. is directed to the system and method of claim 1, further comprising the step of providing for relocation of the first root directory to the second location (Hensley, Paragraph 0025-0026 and Maurer III et al. Paragraph 0112. i.e. "swapping the logical unit". Note that Paragraph 0055 of Maurer III et al. states that "Mirrors can be *"synchronized" in either direction (i.e., from the BCV to the standard or visa versa)"*).

Claim 25, and 31 are rejected on the same basis as claim 3.

As per claim 4, Hensley in view of Maurer III et al. is directed to the system and method according to claim 3, further comprising the step of providing for configuration of the first plurality of files to branch from the first root directory including while the first root

directory is located in the second location (Hensley, Paragraph 0025-0026 and Paragraph 0030).

Claim 32, 51 and 53 are rejected on the same basis as claim 4.

As per claim 5, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, wherein the first and second sub-hierarchies are mutually exclusive (Hensley, Paragraph 0022).

Claim 26 and 33 are rejected on the same basis as claim 5.

As per claim 6, Hensley in view of Maurer III et al. is directed to the method and system according to claim 1, wherein the second location is not occupied by the first sub-hierarchy (Hensley, Paragraph 0022).

Claim 24 and 34 are rejected on the same basis as claim 6.

As per claim 7, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, wherein the providing for relocation step is performed during startup of an operating system executing on the at least one processor (Paragraph 0025 and 0023 of Hensley in view of Paragraph 0112 of Maurer III et al.).

Claim 35 is rejected on the same basis as claim 7.

As per claim 8, Hensley in view of is directed to the system and method according to claim 1, further comprising the step of providing for storage of first and second operating systems executable on the at least one processor in the respective first and second sub-hierarchies (Hensley, Paragraph 0022).

Claim 36 is rejected on the same basis as claim 8

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As per claim 9, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, further comprising the step of providing for a replacement of the first sub-hierarchy with the second sub-hierarchy (Hensley, Paragraph 0022, 0023, 0025, and 0026, and Maurer III et al. Paragraph 0112).

Claim 37 is rejected on the same basis as claim 9.

As per claim 10, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, further comprising the step of providing for an exchange of the first and second sub-hierarchies (Hensley Paragraph 0023 and Paragraph 0025-0027 in view of Maurer, Paragraph 0112).

Claim 38, 52 and 54 are rejected on the same basis as claim 10.

As per claim 11, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, further comprising the step of preventing unauthorized access by an operating system executed on the at least one processor to the HFS other than to the sub-hierarchy of the at least two sub-hierarchies having its root directory located in the first location before and after an exchange (Hensley, Paragraph 0028).

Claim 39 is rejected on the same basis as claim 11.

As per claim 12, Hensley is directed to the system and method according to claim 1, further comprising the step of providing for configuration of the second plurality of files to branch from the first root directory and the first plurality of files to branch from the second root directory (Hensley, Paragraph 0025-0026 and Paragraph 0030).

Claim 40 is rejected on the same basis as claim 12.

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As per claim 13, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, wherein the providing for relocation step further includes the steps of:

providing for reconfiguration of one or more pointers pointing between the second root directory and a parent directory of the second root directory to point between the first root directory and the parent directory of the second root directory (Hensley, Paragraph 0023, 0025-0027, and 0029);

providing for configuration of the second root directory to conform with configuration of the root directory of the HFS (Hensley, Paragraph 0023, 0025-0027, and 0029); and

providing for an exchange of contents and associated data of the first root directory and the second root directory (Hensley, Paragraph 0023, 0025-0027, and 0029, in view of Maurer, Paragraph 0112).

Claim 41 is rejected on the same basis as claim 13.

As per claim 14, Hensley in view of Maurer III et al. is directed to the system and method of claim 1, wherein the HFS resides upon a storage medium selected from the group consisting of physical and virtual storage mediums (Hensley, Paragraph 0022).

Claim 27 and 42 are rejected on the same basis as claim 14.

As per claim 16, Hensley is directed to the system and method according to claim 10, further comprising the step of providing for another exchange of the first and second sub-hierarchies with the effect of returning the first and second sub-hierarchies to their original locations (Hensley Paragraph 0020, i.e. "if the enumeration does not

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reference the emergency boot directory...", and Paragraph 0055 of Maurer III et al., i.e. "Mirrors can be *"synchronized" in either direction* (i.e., from the BCV to the standard or visa versa) ").

Claim 44 is rejected on the same basis as claim 16.

As per claim 17, Hensley in view of Maurer III et al. is directed to the system and method according to claim 10, wherein the providing for the exchange step is performed without copying contents of the first and second plurality of files (Hensley, Paragraph 0023, and Maurer III et al., Paragraph 0112 and Paragraph 0055).

Claim 45 is rejected on the same basis as claim 17.

As per claim 18, Hensley in view of Maurer III et al. is directed to the system and method according to claim 1, further comprising the step of providing at least one special file (Hensley, Paragraph 0018, i.e. "file system filter") accessible via the root directory of the HFS and via one of the first and second root directories when stored in the first location (Hensley, Paragraph 0018).

Claim 46 is rejected on the same basis as claim 18.

As per claim 19, Hensley in view of Maurer III et al. is directed to the system and method according to claim 10, wherein the contents of the first sub-hierarchy include an upgrade of contents of the second sub-hierarchy (Hensley, Paragraph 0030, and Maurer III et al., Paragraph 0112).

Claim 47 is rejected on the same basis as claim 19.

As per claim 20, Hensley in view of Maurer III et al. is directed to the system and method according to claim 10, wherein the exchange is reversible (Hensley, Paragraph

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0019-0020, 0023-0025, and 0030, Maurer III et al. Paragraph 0115 and Paragraph 0055).

Claim 48 is rejected on the same basis as claim 20.

As per claim 21, Hensley in view of Maurer III et al. is directed to the system and method according to claim 10, wherein the first and second sub-hierarchies provide different user environments (Hensley, Paragraph 0028). The system and method taught by Hensley accommodates multi-user environments.

Claim 19 is rejected on the same basis as claim 21.

As per claim 22, Hensley in view of Maurer III et al. is directed to the system and method 22 according to claim 10, wherein contents of the second sub-hierarchy are a backup copy of contents of the first sub-hierarchy (Hensley, Paragraph 0015 and Maurer III et al. Paragraph 0112).

Claim 50 is rejected on the same basis as claim 22.

Claim 55 is rejected on the same basis as claim 1. Note that the method of Hensley in view of Maurer III et al. teaches a method for a data storage system having data restore by swapping logical units, wherein a second root directory is relocated (restored to) to the first location (Maurer III et al., Paragraph 0112, i.e. "In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client by **swapping** to the logical unit accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy

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to the first logical unit and application access to the first logical can be provided after *mirror synchronization* for the restore is complete.") As such it is inherent in the method of Hensley in view of Maurer III et al. that any feature exclusively associated with the root directory of the HFS would associate with the second root directory during the *swapping operation* and disassociate said feature from the first root directory.

Claim 56 is rejected on the same basis as claim 1. In the method and system of Hensley in view of Maurer III et al., the first and second sub-hierarchies could be mirrors and according "overlapping".

Claim 57 is rejected on the same basis as claim 1. Official note is take that it is notoriously well known in the art that any root director is a parentless directory. In the method and system of Hensley in view of Maurer III et al., any number of sub-hierarchies could be created for alternate rebooting or mirroring of volumes.

5. Claim 15 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer III et al. and further in view of Mansur et al. (U.S. Patent Application Publication Number 2002/0095548

Referring to claim 15, Hensley in view of Maurer III et al. is directed to the system and method of claim 1 but does not expressly disclose that said system and method comprises the step of providing a backup directory branching from the root directory of the HFS and not included in the at least two sub-hierarchies. However, Mansur et al. teaches a system and method for storage system controller configuration

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wherein a backup directory, containing more directories inside, is used (Mansur et al., Paragraph 0045).

A the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of employing backup directories as taught by Mansur et al. to the system and method taught by Hensley in view of Maurer III et al. as applied to claim 1 so that the resultant system and method would provide a backup directory branching from the root directory of the HFS and not included in the at least two sub-hierarchies, from which branch respective sub-hierarchies of the at least two sub-hierarchies other than the sub-hierarchy of the at least two sub-hierarchies having its root directory located in the first location. One would have been motivated to do so in order to simply "to restore the directory in the event the primary directory location or primary lock becomes corrupted" (Mansur et al., Paragraph 0045).

Claim 43 is rejected on the same basis as claim 15.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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